

Notice of Allowability

Application No.

10/724,633

Applicant(s)

MCCHARLES ET AL.

Examiner

MANSOUR M. SAID

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/2/03.
2. ☒ The allowed claim(s) is/are 1-20 & 22-25; and renumbered as 1-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 12/2/03
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____


RICHARD HJERPESUPERVISOR, PATENT EXAMINER
TECHNICAL STAFF, 2600

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Gromada, Jameson June 22, 2006.

2. The application has been amended as follows.

IN THE CLAIMS

Please cancel claims 21 and 26-29.

Claim 22 (currently amended) A camera-based touch system comprising: at least one pair of cameras associated with a touch surface and having overlapping fields of view encompassing said touch surface, said at least one pair of cameras acquiring images of said touch surface from different locations and generating image data; a processor receiving and processing the image data generated by said at least one pair of cameras to determine the location of an object relative to the touch surface by triangulation when the object is captured in images acquired by the at least one pair of cameras; and a synchronization mechanism to synchronize image data generated by said at least one pair of cameras; ~~22. A touch system according to claim 21 wherein each camera processes each image acquired thereby to determine the position of the object therein and~~

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records the position together with a timestamp representing the time elapsed between a reference point common to said cameras and the time the image was acquired, and wherein said synchronization mechanism interpolates between successive pairs of recorded positions to generate interpolated positions, the interpolated positions being recorded together with synchronization times representing times the images would have been acquired had said cameras been synchronized, said processor using interpolated positions generated by the cameras having equivalent associated synchronization times to determine the location of the object using triangulation.

Allowable Subject Matter

3. Claims 1-20 and 22-25 are allowed.

The following is an examiner's statement of reasons for allowance: Claims 1-20 and 22-25 are allowed since certain key features of the claimed invention are not taught or fairly suggested by prior art. **In claim 1**, “processing each acquired image to determine the position of said pointer therein and recording the position together with a timestamp representing the time elapsed between a reference point common to said cameras and the time the image was acquired; and interpolating between pairs of recorded positions to generate interpolated positions and recording each interpolated position together with a synchronization time representing a time each image would have been acquired had said cameras been synchronized”. **In claim 9**, “interpolating between successive pairs of recorded positions to generate interpolated positions and recording said interpolated positions together with synchronization times representing times the images would have been acquired had said cameras been synchronized; and determining

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interpolated positions generated by said cameras having equivalent associated synchronization times and triangulating the interpolated positions to estimate the position of the said pointer relative to said touch surface". In claim 22, "wherein each camera processes each image acquired thereby to determine the position of the object therein and records the position together with a timestamp representing the time elapsed between a reference point common to said cameras and the time the image was acquired, and wherein said synchronization mechanism interpolates between successive pairs of recorded positions to generate interpolated positions, the interpolated positions being recorded together with synchronization times representing times the images would have been acquired had said cameras been synchronized, said processor using interpolated positions generated by the cameras having equivalent associated synchronization times to determine the location of the object using triangulation". The closest prior art DeLuca et al. (6,559,813 B1 teach using pattern recognition and triangulation images from video cameras are used to determine position of physical objects within the space, such as the position of the user and the user's finger, however, singularly or in combination with other prior art, fail to anticipate or render the above underlined limitations obvious.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance.

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Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fujimoto et al. (6,061,177) teach a touch screen input device for use with a rear-mounted video output projection system.

Fujioka (6,674,424 B1) teaches inputting information including coordinate data.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mansour M. Said whose telephone number is 571-272-7679. The examiner can normally be reached on Monday through Thursday from 8:30-6:00 P.M. The examiner can also be reached on alternate Friday from 8:30 a.m. to 5:00 p.m. EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hjerpe, Richard A. whose telephone number is 571-272-7691.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

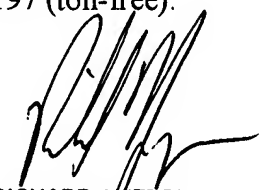
or faxed to: 571-273-8300 (for Technology Center 2600 only)

Hand-delivered responses should be brought to the Customer Service Window at the Randolph Building, 401, Dulany Street, Alexandria, VA 22314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mansour M. Said

6/23/06


RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600